

Mobile Zone Optimized Control System for Ultra-Efficient Surface-Coating Operations



New Surface-Coating Technique Reduces Air Pollution and Energy Use

Volatile organic compounds (VOCs) are released during the application of spray coatings in paint enclosures, which expose workers to toxins, create air pollution emissions, and create fire or explosion hazards. To meet safety and environmental regulations, paint booths are usually ventilated with 100% outside air, which is then heated or cooled to maintain comfortable temperatures and control pollution emissions.

A new spray booth technology developed by Mobile Zone Associates with the help of a grant from the Inventions and Innovation Program greatly reduces the amount of energy needed to heat and cool ventilation air during surface coating operations. The Mobile Zone system separates the human painter from the contaminated air of the spray booth by providing the painter with a separate, mobile work platform or cab during spray coating operations. The cab is flushed with fresh air, while the rest of the spray booth uses recirculated air. The design meets OSHA regulations and National Fire Protection Association guidelines. The technology is currently being used by the US Army at Fort Hood, Texas for consideration of system wide use.

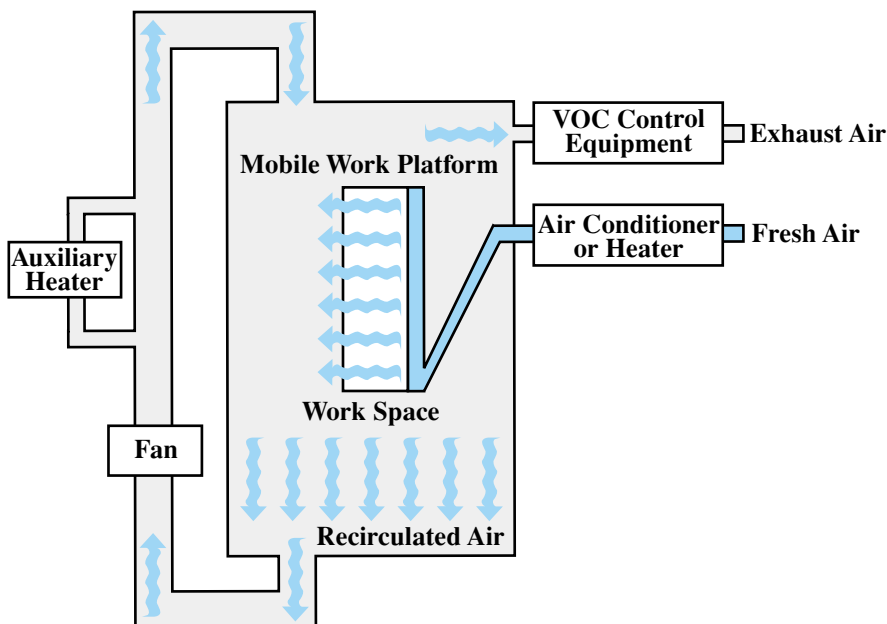
Benefits

Profitability

The technology reduces the size of heating, cooling, and pollution control equipment between 60% and 98%, which offers significant savings in associated capital and energy costs.

Productivity/Product Quality

Testing has shown the technology is able to maintain or improve production speed and quality.



Air Flow in Paint Spray Booth with Mobile Zone System

Overview

- ◆ Developed by Mr. Clyde Smith and Mr. William Brown of Mobile Zone Associates
- ◆ 1 installation operating in the United States in 2003

Energy Savings (Trillion Btu)

Cumulative through 2003	2003
0.017	0.007

Emissions Reductions (Thousand Tons, 2003)

Particulates	SO _x	NO _x	Carbon
0.0	0.001	0.001	0.136

Applications

Applying sprayed surface coatings to chairs, tables, motorcycles, tractors, railroad cars, and aircraft in either side-draft or down-draft booths

Capabilities

Reduces the ventilation, heating and cooling requirements by directing a sufficient, but small, amount of fresh air to the painter and recirculated air to the remaining unoccupied space within the spray booth. Meets existing OSHA, EPA and NFPA standards for worker conditions.